



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the application of: )  
Shahram Shah-Heydari )  
Serial No.: ) Group Art Unit:  
Filed: ) Examiner:  
For: HIERARCHICAL TREE- ) Attorney Docket: 91436-347  
BASED PROTECTION SCHEME )  
FOR MESH NETWORKS )

Commissioner for Patents  
Washington, D.C. 20231  
U.S.A.

Dear Sir/Madam:

**PRELIMINARY AMENDMENT**

Please amend the disclosure of this application as follows:

Page 2, replace the paragraph at lines 4 to 16 with the following:

In a hierarchical tree-based protection scheme, a mesh network node is designated as a root node of a hierarchical protection tree. The root node invites each adjacent node to become its child within the tree. If the inviting node provides a more capacious protection path to the root node (i.e., a path to the root node with more capacity) than is currently enjoyed by the invitee, the invitee designates the inviting node as its primary parent and assumes a new tree position. Otherwise, the invitee designates the inviting node as a backup parent. A node assuming a new tree position invites all adjacent nodes except its parent to become its child. The invitations propagate throughout the network until a spanning hierarchical protection tree is formed. Upon a subsequent failure of a straddling link, the tree may be used to re-route data. Further, given a tree link failure, protection switching is quickly

achieved at a disconnected node through use of a backup parent as the new primary parent. Dynamic tree reconfiguration in the event of network topology changes may be limited to the network area surrounding the change.

Replace the paragraph at page 12, line 23 to page 13, line 8 with the following:

If the received minimum capacity is greater than the current capacity, this indicates that the sending node offers a more capacious protection path to the root node (i.e., a path to the root node with more capacity) than the recipient currently enjoys. In this case, the recipient accepts the offer to become a child of the sending node and thereby assumes a new position in the tree as the child of the sender. Thereafter, in view of its new tree position, the recipient will send similar invitation messages to all of its neighbors (except the sending node) to inform them of its new position and to invite them to configure themselves as *its* children. As before, the neighbors will accept the recipient's invitation if the protection path to the root node via the sender is a more capacious one than the neighbors currently enjoy. This process continues until invitation messages have propagated outwardly from the root throughout the network to cause a spanning hierarchical protection tree to be formed, with each node processing its received messages asynchronously with respect to the other network nodes. If at any point a node with an existing parent accepts a new node as its parent, the previous parent node will be demoted to a "backup parent" role, with the priority of the backups being determined by decreasing capacity to the root (i.e. the higher the capacity the higher the priority).

#### Remarks

The amendment to these paragraphs adds, in parentheses, an alternate

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**“Version with Markings to Show Changes Made”**

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